

The **Marquette** METAL PRODUCTS CO.  
a wholly owned subsidiary of  
CURTISS-WRIGHT CORPORATION

1145 GALEWOOD DRIVE  
CLEVELAND, OHIO 44110  
TELEPHONE 451-4800

August 31, 1967

T. Nelson, Sys. Consultant  
Box 1546  
Poughkeepsie, N. Y. 12603

Dear Mr. Nelson:

Thank you for your request for additional information about the newly developed Marquette Electrospring clutch.

The enclosed brochure completely describes our standard line of in-stock units. There are three (3) basic sizes in torque capacities of 30, 125, and 600 lb.in. with bores of 3/8, 1/2, and 3/4" respectively.

Both normally engaged and normally disengaged types are available, for either clockwise or counterclockwise rotation with the shaft as the driver or driven. We offer 96 standard models.

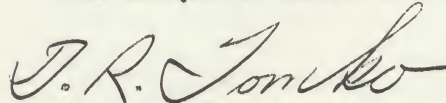
The integral stationary coil requires no slip rings or brushes; there are no parts to wear or adjust. Standard d-c coils are available for 12, 24, or 90 volts. We point with pride to our introduction of the standard 115V a-c coil Electrospring clutch. If your power supply is 115V a-c, just plug in and operate - - - - no rectifier is needed.

Electrospring clutches are being applied in office and business machines, packaging machinery, machine tools, computers, and many other products in all phases of industry. They are ideally suited for motor driven and power take-off applications including multi-speed and reversing transmissions.

Our Sales Representative will be happy to review your projects and assist you in clutch application programs. Please feel free to contact Ernest H. Pauli Associates, Inc. 705 Park Avenue, Plainfield, N. J. 07060 - Phone (201) 755-4440.

Very truly yours,

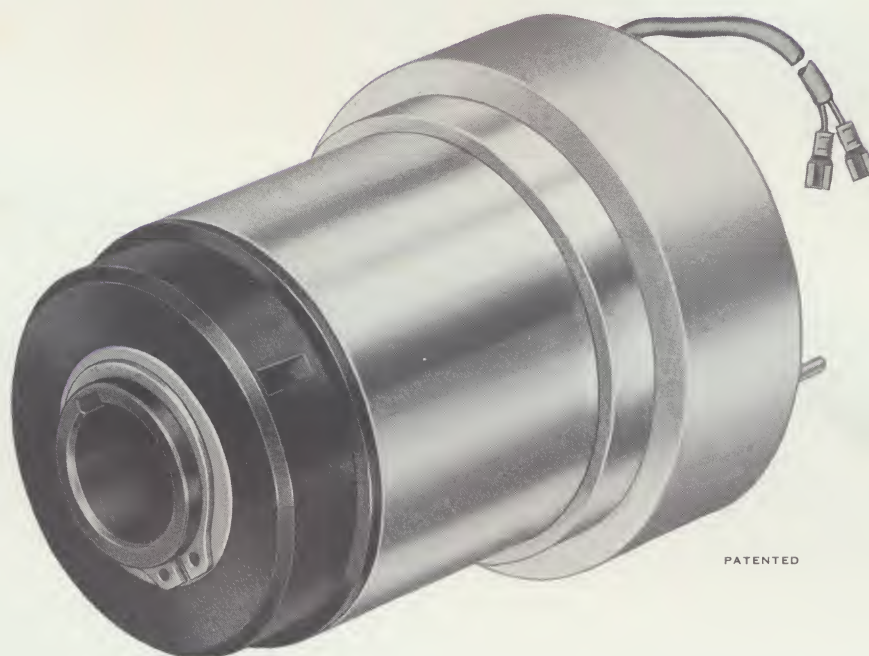
THE MARQUETTE METAL PRODUCTS CO.

  
D. R. Tomko  
Product Manager

DRT:gs

Enclosure

*NEW* MARQUETTE  
*Electrospring*  
CLUTCHES



IN STOCK FOR IMMEDIATE DELIVERY

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1145 GALEWOOD DRIVE CLEVELAND, OHIO 44110  
(216) 451-4800

SALES REPRESENTATIVES IN MAJOR CITIES

## ELECTROSPRING CLUTCHES--SERIES E

*The Marquette* METAL PRODUCTS CO.

# ELECTROSPRING CLUTCHES

## SERIES E

The standard Electrospring electrically-operated clutch offers the advantages of compactness, long life, dependability of operation, low cost and minimum maintenance. It offers the additional advantage of actuation by a built-in coil and actuating mechanism

that eliminates external lever or solenoid systems, and responds rapidly to very low a-c or d-c wattage.

Standard sizes available in torque capacities of 30 to 600 Lb-in. Shaft sizes  $\frac{3}{8}$ " to  $\frac{3}{4}$ ". Rotation, choice of clockwise, or counterclockwise.

IN STOCK FOR IMMEDIATE DELIVERY

## APPLICATIONS

### Normally-Disengaged, Series ED

This clutch is used for selective clutching, overrunning, reversing, or neutral-position operation. When clutch is not driving (coil de-energized), the output is in neutral and free to rotate in either direction.

A typical application is one in which, upon signal, power is transmitted from a shaft driving in one direction. Power transmitted to a gear, pulley, or sprocket on the clutch may be intermittent, while power to other gears, pulleys, or sprockets on the shaft is constant.

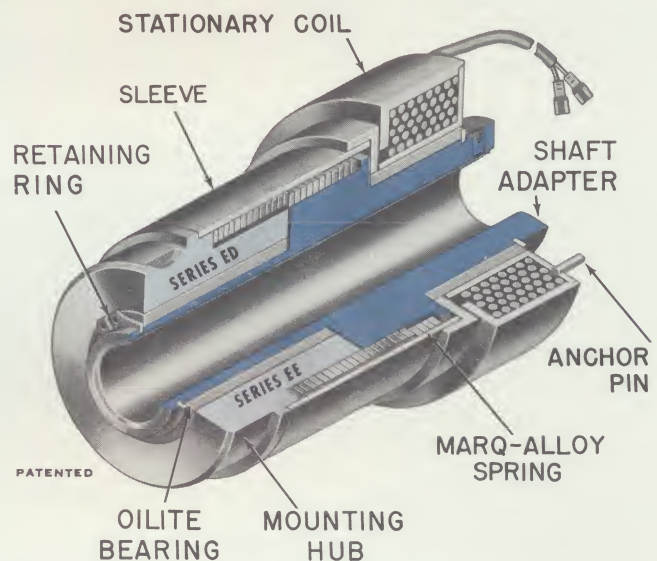
This clutch is especially adaptable to applications requiring long periods of disengagement or reversing.

### Normally-Engaged, Series EE

This clutch is used for selective clutching, overrunning, or disengagement. When clutch is not driving (coil energized), the output is free to rotate in driven direction, or come to rest. A typical application is one in which, upon signal, power transmitted from a shaft driving in one direction to a gear, pulley, or sprocket on the clutch, may be disengaged; while power to other gears, pulleys, or sprockets on the shaft is constant.

This clutch is used in applications requiring long periods of engagement or rapid response.

Both Series ED and EE are actuated by a lightweight, compact coil designed as an integral part of the clutch assembly. Coils are available for 115 Vac, or a variety of d-c voltages.



*In this cut-away view, the cross section of the Shaft Adapter is shown in dark blue. The cross section of the Mounting Hub is shown in light blue. Either the Shaft Adapter or the Mounting Hub may be the driving or the driven member.*

## OPERATION

Series	Coil De-energized	Coil Energized
ED	Disengaged	Engaged
EE	Engaged	Disengaged

With both the normally-disengaged and normally-engaged clutch, the shaft may be employed as either the "driver", or the "driven".

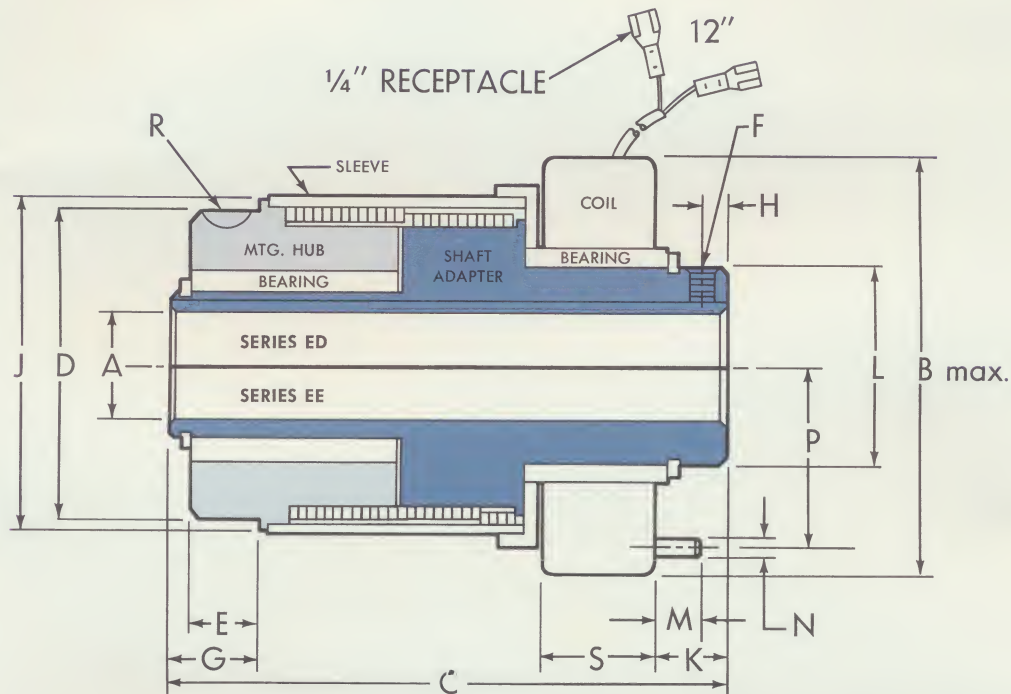
## CONSTRUCTION

Clutch spring is made of spring-tempered wire in a specific shape, die-drawn to rigid specifications. Mounting Hub and Shaft Adapter are steel, hardened and precision ground. Equipped with oil-impregnated, sintered bronze bearings. Operating coil is totally encased for operation in oil and is furnished with electrical leads containing push-type connectors.

# ELECTROSPRING CLUTCHES--SERIES E

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## DIMENSIONS AND ENGINEERING DATA



SIZE NO.	BORE A	TORQUE CAPACITY (# IN.)	*MODEL NUMBER (FOR ORDERING)		MAX. RATED SPEED (R.P.M.)	ALLOWABLE INERTIAL LOADS (WR <sup>2</sup> )	OUTSIDE DIA. B	OVER-ALL LENGTH C	APPROX. WEIGHT (OZ.)
			TYPE E( )43 E( )46	TYPE E( )93 E( )96					
2	.376 .378	30	E( )43-2- E( )46-2-	E( )93-2- E( )96-2-	1800	SEE CHART	1 7/8	2 3/8	8.5
4	.501 .503	125	E( )43-4- E( )46-4-	E( )93-4- E( )96-4-	1800	SEE CHART	2 1/8	2 7/8	15
6	.751 .753	600	E( )43-6- E( )46-6-	E( )93-6- E( )96-6-	1800	SEE CHART	2 7/8	3 7/8	53

Size No.	SHAFT ATTACHMENT F	MOUNTING HUB					SHAFT ADAPTER			COIL			
		DIA. D	LGTH. E	WOODRUFF KEYWAY R	LGTH. G	DIA. J	DIA. L	LGTH. K	LGTH. H	LGTH. P	DIA. N	LGTH. M	LGTH. S
2	#10 SET SCREW	1.001 1.002	13/32	NONE	1/2	13/32	.749 .750	3/8	11/64	11/16	.060 .065	7/32	15/32
4	3/16 DIA. ROLL PIN	1.1265 1.1275	7/16	NONE	17/32	17/16	.749 .750	5/16	5/32	13/16	.090 .095	7/32	21/32
6	#10 SET SCREW 3/16 SQ. KEY	2.1265 2.1275	1/2	#213	5/8	25/16	1.373 1.374	3/8	11/64	1 1/4	.122 .127	11/32	7/8

\*STANDARD COILS AVAILABLE: 12, 24, 90 VOLTS D-C AND 115 VOLTS A-C

To order — add coil voltage to model no. Example: EE-93-4-115 A-C.

(Coils for other voltages available on special order).

# ELECTROSPRING CLUTCHES--SERIES E

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## HOW TO SELECT THE RIGHT SIZE

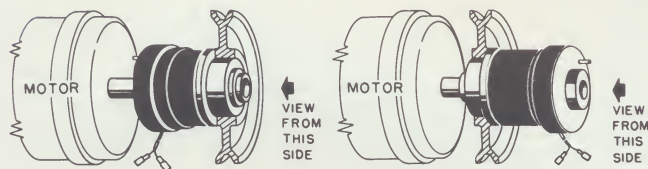
### BASED ON SHAFT SPEED, SHAFT SIZE AND TORQUE

Size selection for Electrospring clutches is greatly dependent on the inertial load of driven part and driving speed. The clutch must accelerate a load from 0 to maximum R.P.M. in a very brief time interval. The graph in the main catalog, page 14, will help in estimating the inertia of driven parts. The curves of maximum allowable inertial load shown below will further aid in clutch selection. **SPECIAL NOTE:** In the application of Series E clutches the most critical

factor is the R.P.M. of the clutch. The load and  $WR^2$  are fixed for any particular requirement and should not be changed. Therefore recognizing the importance of clutch R.P.M. the clutches should be applied at the lowest possible speed in the drive system.

For Series E clutches with relatively heavy  $WR^2$  loads a V-belt drive will cushion the shock of engagement of both clutch and the system.

#### CLUTCH MOUNTED ON DRIVING SHAFT



Clockwise

ED-96

EE-96

Counterclockwise

ED-46

EE-46

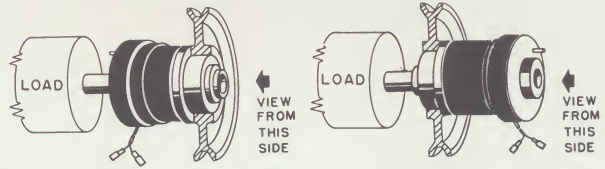
ED-46

EE-46

ED-96

EE-96

#### CLUTCH MOUNTED ON LOAD SHAFT



Clockwise

ED-43

EE-43

Counterclockwise

ED-93

EE-93

ED-93

EE-93

ED-43

EE-43

## INERTIAL LOAD GRAPHS

